

# Redundant StarShade Truss Deployment Motor/Cable Assembly, Phase I

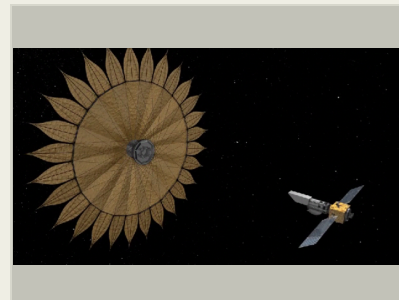
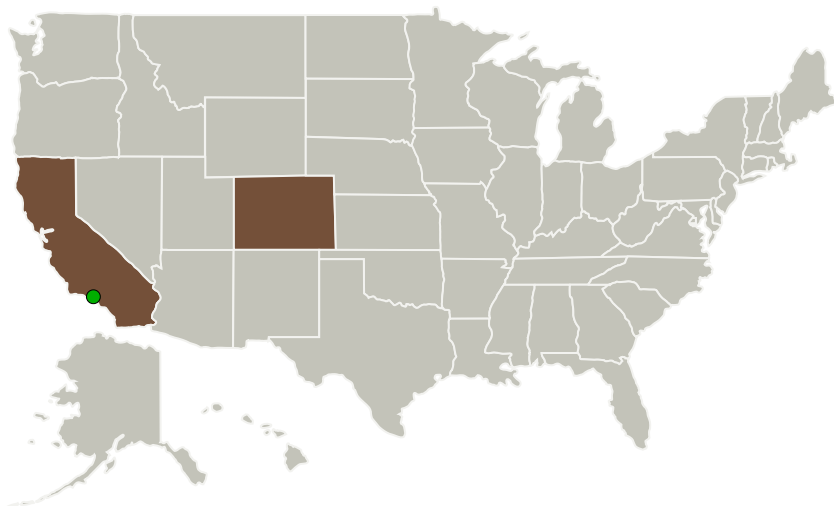
Completed Technology Project (2017 - 2017)



## Project Introduction

The proposed innovations are as follows: 1) A fully redundant electrical and mechanical motor/cable deployment assembly 2) A redundant motor/cable deployment assembly that is integrated and deploys a perimeter truss for a starshade. The significance and relevance of the proposed innovations is to meet the technical challenges of deploying a large scale perimeter truss (10-30m diameter) for a starshade. The STDT's "Exo-S Final Report" identified an open issue to "Mature perimeter truss technology readiness." This is part of a defined starshade technology gap S-5 that is titled "Demonstrate inner disk deployment with optical shield." In the NASA JPL starshade design the petals are placed into their precise position by the deploying truss. The truss also deploys the spiral wrapped inner disk and at the end tensions the precision spokes. If the truss was not able to fully deploy or meet the on-orbit load (deployment and deployed) and positioning requirements then the mission would fail. Obviously the truss deployment mechanism needs to be a robust and reliable system.

## Primary U.S. Work Locations and Key Partners



Redundant StarShade Truss Deployment Motor/Cable Assembly, Phase I Briefing Chart Image

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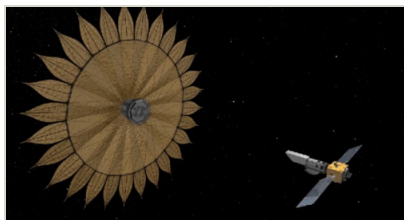


Organizations Performing Work	Role	Type	Location
Tendeg LLC	Lead Organization	Industry Small Disadvantaged Business (SDB)	Louisville, Colorado
● Jet Propulsion Laboratory(JPL)	Supporting Organization	NASA Center	Pasadena, California

## Primary U.S. Work Locations

California	Colorado
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## Images



### Briefing Chart Image

Redundant StarShade Truss Deployment Motor/Cable Assembly, Phase I Briefing Chart Image  
(<https://techport.nasa.gov/image/136006>)

## Organizational Responsibility

### Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

### Lead Organization:

Tendeg LLC

### Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

## Project Management

### Program Director:

Jason L Kessler

### Program Manager:

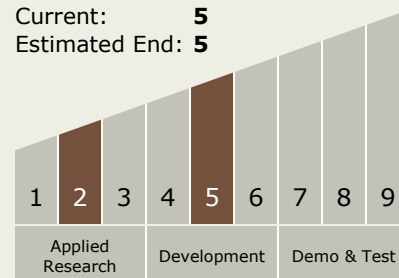
Carlos Torrez

### Principal Investigator:

Neal Beidleman

## Technology Maturity (TRL)

Start: 2  
Current: 5  
Estimated End: 5



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## Technology Areas

### Primary:

- TX12 Materials, Structures, Mechanical Systems, and Manufacturing
  - └ TX12.3 Mechanical Systems
    - └ TX12.3.1 Deployables, Docking, and Interfaces

## Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System